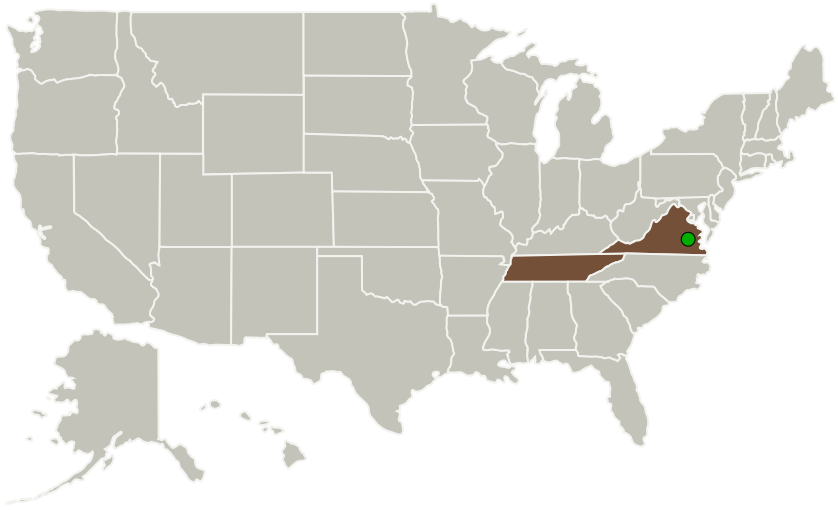
Multifunctional BHL Radiation Shield, Phase I

Completed Technology Project (2015 - 2015)

Project Introduction

Advances in radiation shielding technology remain an important challenge for NASA in order to protect their astronauts, particularly as NASA grows closer to manned missions to the moon and Mars. Polyethylene is a readily available and structurally sound thermoplastic that has recently gained a fair amount of notoriety as an effective radiation shield. GTL is proposing to incorporate polyethylene into its BHL technology. The result will be a lightweight and multifunctional composite material that can be used as primary, secondary and interior spacecraft structure and protect the crew from radiation. Additionally, this material's architecture can be tailored to provide the optimal combination of structural strength and radiation protection for any application. Using BHL-PE to create storage containers between structural layers for items such as food, supplies, treated waste and regolith, will these items to serve as multipurpose radiation shielding and improve the overall radiation absorption potential of BHL-PE

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Gloyer-Taylor Laboratories LLC	Lead Organization	Industry	Tullahoma, Tennessee
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

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Primary U.S. Work Locations	
Tennessee	Virginia

Project Transitions

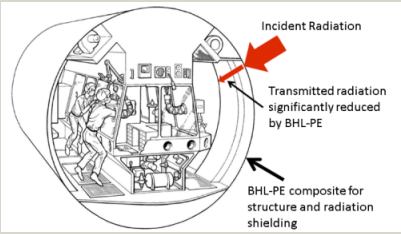
June 2015: Project Start

December 2015: Closed out

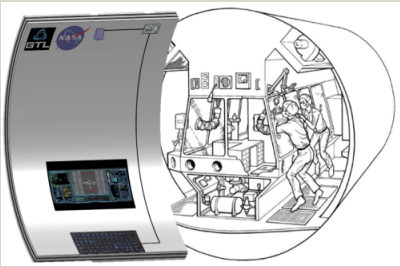
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139260)*

Images



Briefing Chart
Multifunctional BHL Radiation Shield Briefing Chart *(https://techport.nasa.gov/image/127804)*



Final Summary Chart Image
Multifunctional BHL Radiation Shield, Phase I Project Image *(https://techport.nasa.gov/image/127842)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Gloyer-Taylor Laboratories LLC

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

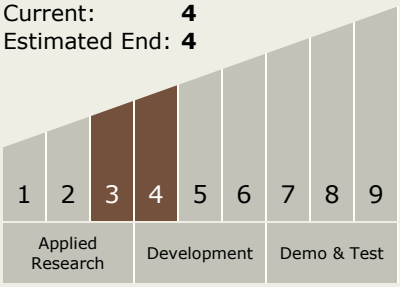
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Zachary Taylor

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.5 Radiation
    - TX06.5.3 Protection Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System